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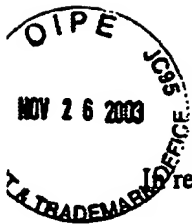
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Pre Patent Application of

Jin-ho LEE, et al.

Application No.: 09/873,382

Filed June 5, 2001

For: MICRO-ACTUATOR AND
MANUFACTURING METHOD
THEREOF

) MAIL STOP AF
)
) Group Art Unit: 2834
)
) Examiner: K. TAMAI
)
) Confirmation No.: 4610
)
)
)
)

NOTICE OF APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

All finally rejected claims in the decision of the Primary Examiner dated June 27, 2003 are hereby appealed to the Board of Patent Appeals and Interferences.

- ☐ The Appeal fee was previously paid on _____.
Therefore, no Appeal fee is now required.
- ☒ Enclosed is the Appeal fee of ☐ \$165.00 (2401) ☒ \$330.00 (1401).
- ☐ Please charge the Appeal fee of ☐ \$165.00 (2401) ☐ \$330.00 (1401) to Deposit Account No. 02-4800.
- ☐ Small entity status is hereby claimed.

The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. This paper is submitted in duplicate.

Adjustment Date: 02/10/2004 SDIRETA1
11/26/2003 HDEESS1 00000035 09873382
01 FC:1401 -330.00 OP

Respectfully submitted,

Repin. Ref: 02/10/2004 SDIRETA1 0009501800
DHH:024000 Name/Number:09873382
FC: 3204 \$330.00 CR

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: 11/26/03

By: 

Stephen W. Palan
Registration No. 43,420

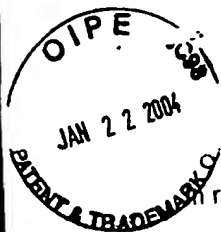
P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

11/26/2003 HDEESS1 00000035 09873382

01 FC:1401

330.00 OP

(10/03)



DEP & REF

Patent
Attorney's Docket No. 030681-305

Room 307

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Byung-kyu LEE et al.

Application No.: ~~10/020,701~~ 091873:382

Filed: December 31, 2001

For: PERPENDICULAR MAGNETIC
RECORDING MEDIUM

Group Art Unit: 1773

Examiner: Holly C. RICKMAN

Confirmation No.: 3883

REQUEST FOR REFUND PURSUANT TO 37 C.F.R. §1.26

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants respectfully request refund of the \$330.00 notice of appeal fee paid on November 26, 2003, because this fee is in excess of that required.

On June 27, 2003, a final Office Action was mailed by the U.S. Patent and Trademark Office. (Exhibit A). On November 26, 2003, applicants submitted an Amendment placing the application in condition for allowance. Along with the Amendment, a Notice of Appeal was filed to maintain pendency for the application in case the Patent Office did not act on the after final amendment by the non-extendible six-month due date of December 26, 2003. (Exhibits B and C). A Notice of Allowance and fee due was mailed by the U.S. Patent and Trademark Office on December 11, 2003. (Exhibit D). Because the Patent Office mailed a Notice of Allowance prior to the non-extendible six-month due date of December 26, 2003, the Notice of Appeal was not required to maintain pendency of the application, and hence, the fee for the Notice of Appeal was in excess of that required.

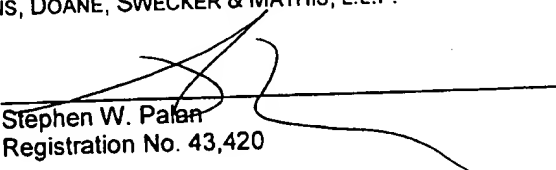
Accordingly, applicants respectfully request that Deposit Account No. 02-4800 be credited \$330.00 as a result of the foregoing.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: January 22, 2004

By:


Stephen W. Pafan
Registration No. 43,420P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,382	06/05/2001	US P. Jin-Ho Lee	030681-305	4610

21839 7590 06/27/2003

BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404



EXAMINER

TAMAI, KARL I

ART UNIT

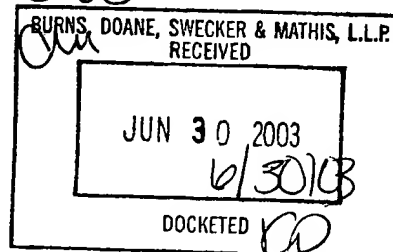
PAPER NUMBER

2834

DATE MAILED: 06/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

JUN 20 03



JAN 22 2004

Office Action Summary

Application No.

09/873,382

Applicant(s)

LEE ET AL.

Examiner

Tamai IE Karl

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-10 and 20-23 is/are rejected.
- 7) ☒ Claim(s) 5 and 24-27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 0403.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. The amended title --MICRO-ACTUATOR WITH INTERDIGITATED COMBS PERPENDICULAR TO A BASE--has been entered into the file wrapper. The requirement of a new title is withdrawn.

Information Disclosure Statement

2. The examiner notes the United States Patents listed in the specification have been submitted on an IDS dated 4/3/03. These references have been considered by the examiner as indicated by the initialed USPTO 1449. The Korean references cited in the specification have not been provided by the applicant, therefore only the brief, written disclosure in the background of the invention of the present application has been considered by the examiner.

Drawings

3. Photographs, including photocopies of photographs, are not ordinarily permitted in utility and design patent applications. (See 37 CFR 1.84). The Applicant is required to replace the photographs with a drawing.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 8, 9, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Victor (JP 2000418429) and Ahn et al. (Ahn)(US 6116863) and Neukermans et al. (Neukermans)(US 5629790). Victor teaches an electrostatic microactuator with a base plate with a prearranged pattern of signal lines for fixed comb shaped electrodes. The fixed combs driving movable comb electrodes on a stage supported by torsion bars for see-saw motion. Victor shows in figure 15 that the electrodes extend to the bottom of the first frame. Victor does not teach an eutectic bonding layer between the upper and lower frames or the thickness of the torsion bar is less than the driving combs. Ahn teaches that eutectic bonding is one of several bonding methods for securing frames/substrates in a MEMS device. Neukermans teaches the torsion bar has a thickness less than the stage. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Victor with the frames secured by an eutectic bond because Ahn teaches it is the preferred mode to bond MEM frames, and it is within the ordinary skill in the art to choose between known equivalents means of bonding, and with the torsion bar being less thick than the electrodes to allow for a variety of vibrations modes, as taught by Neukermans.

6. Claims 6, 7, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Victor (JP 2000-418429) and Ahn et al. (Ahn)(US 6,116,863) and Neukermans et al. (Neukermans)(US 5629790), in further view of Nakagawa (JP 5-76186)). Victor, Ahn, and Neukermans teach every aspect of the invention except the electrodes

extending above the second frame. Nakagawa teaches the electrodes interdigital and coplanar with the stage. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Victor and Ahn with the fixed electrodes above the second frame to be coplanar with the stage/moving electrodes to generate a good electrostatic driving force.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Victor (JP 2000418429) and Ahn et al. (Ahn)(US 6116863) and Neukermans et al. (Neukermans)(US 5629790), in further view of Nishiguchi (US 5,064,782). Victor, Ahn, and Neukermans teach every aspect of the invention except the multiplayer eutectic bond with the middle layer being Au/Sn. Nishiguchi teaches the multiplayer eutectic bond with the middle layer being Au/Sn to improve the eutectic adhesion between the frames. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Victor and Ahn and Neukermans with the multiplayer eutectic bond with the middle layer being Au/Sn to improve the eutectic adhesion between the frames.

Allowable Subject Matter

8. Claims 5 and 24-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments filed 4/3/03 have been fully considered but they are not persuasive. The Applicant's arguments regarding the photocopies is not persuasive. 37 CFR 1.84(b)(1) states that photographs are accepted when they are the ONLY practical medium for illustrating the invention. The examiner believes that drawings can be provided to show the invention as shown in the photographs, therefore the photographs are not the ONLY practical medium for showing the invention. 37 CFR 1.84(b)(1) also requires the photographs must be of sufficient quality to show the details from the photographs. The photographs are not of sufficient quality to show the details because the pre-grant publication shows the details are not visible from the reproduced photographs.

The Applicant's arguments regarding the slots of the Victor is not persuasive because the claim limitation "comprising" allows the inclusion of the slots and ribs of Victor. The Applicant's argument regarding front end of the driving (moving electrodes) being on the same plane as the first frame (for claims 8 and 20-23) is not persuasive. The Applicant argues that the front end of the electrodes is the bottom of the slot, but the examiner reads the front end of the electrodes at the top of the slot which is on the same plane as the frame as shown in figure 15.

The Applicant's arguments that the electrodes of cannot be incorporated into Victor is not persuasive because the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or

all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In the instant application, the claim requires the bottom of the stage to have electrodes where the fixed electrodes extending above the moving electrodes, which is shown in Nakagawa where the fixed electrodes extend above the bottom surface of the moving stage (figure 1) to provide good electrostatic driving displacement. Therefore the combined teachings of Victor and Nakagawa provide an electrostatic actuator with good displacement. The Applicant's arguments are also not persuasive because fixed electrodes of Victor extend in between the moving electrodes, which means Victor either teaches or suggests the fixed electrodes are higher than the second frame because the lower surface of the frame is the same as the lower surface of the electrodes. The Applicant's argument that Nakagawa teaches electrodes that extend parallel is not persuasive because the direction in which the electrodes extend is not claimed, only that the electrodes are formed on the bottom of the stage, which Nakagawa meets because the parallel electrodes are included in the bottom surface.

The Applicant's argument regarding front end of the driving(moving electrodes) being on the same plane as the first frame is not persuasive. The Applicant argues that the front end of the electrodes is the bottom of the slot, but the examiner reads the front end of the electrodes at the top of the slot which is on the same plane as the frame as shown in figure 15. The Applicant's argument that claim 10 is allowable because of the

Application/Control Number: 09/873,382
Art Unit: 2834

PAGE 7 Page 7

previous arguments is not persuasive because the other arguments were not persuasive.

Conclusion

10. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (703) 305-7066. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist at (703) 308-0956.

Karl I Tamai
PRIMARY PATENT EXAMINER
June 23, 2003

KARL TAMAI
PRIMARY EXAMINER



Notice of References Cited



Application/Control No.

09/873,382

Applicant(s)/Patent Under
Reexamination
LEE ET AL.

Examiner

Tamai IE Karl

Art Unit

2834

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-20020021055	02-2002	Lee et al.	310/309
*	B	US-5629790	05-1997	Neukermans et al.	359/198
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
✓	U	translation of JP 2000-147,419, 11/2000, Iseki et al.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

APR 03 2003

SHEET 1 OF 1

Substitute for forms 1449A/PTO & 1449B/PTO

THIRD INFORMATION DISCLOSURE STATEMENT BY APPLICANT

ATTORNEY'S DKT NO.
030681-305

APPLICATION NO.
09/873,382

APPLICANT
Jin-ho LEE et al.

FILING DATE
June 5, 2001

GROUP
2834

TRADEMARK OFFICE
JAN 22 2004

U.S. PATENT DOCUMENTS

Examiner Initials	Document Number	Kind Code (if known)	Name of Patentee or Applicant of Cited Document	Issue/Publication Date (MM-DD-YYYY)
EW	5,025,346		TANG et al.	06-18-1991
WT	5,097,480		PEASE	03-17-1992
WT	5,536,988		ZHANG et al.	07-16-1996

FOREIGN PATENT DOCUMENTS

Examiner Initials	Document Number	Kind Code (if known)	Country	Date of Publication (MM-DD-YYYY)	Translation Yes	No
WT	JP-A-2000-147419		JAPAN	05-26-2000	X	

NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.

Examiner Signature	<i>[Signature]</i>	Date Considered	6/20/03
--------------------	--------------------	-----------------	---------

EXAMINER: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



Form PTO 948 (Rev. 03/01)

U.S. DEPARTMENT OF COMMERCE - Patent and Trademark Office

Application No.

9/873382

NOTICE OF DRAFTSPERSON'S
PATENT DRAWING REVIEWThe drawing(s) filed (insert date) 6/5/01 are:A. ☒ approved by the Draftsperson under 37 CFR 1.84 or 1.152.B. ☒ objected to by the Draftsperson under 37 CFR 1.84 or 1.152 for the reasons indicated below. The Examiner will require submission of new, corrected drawings when necessary. Corrected drawing must be submitted according to the instructions on the back of this notice.

1. DRAWINGS. 37 CFR 1.84(a): Acceptable categories of drawings:

Black ink. Color.

Color drawings are not acceptable until petition is granted.

Fig(s) _____

Pencil and non black ink not permitted. Fig(s) _____

2. PHOTOGRAPHS. 37 CFR 1.84(b)

1 full-tone set is required. Fig(s) _____

Photographs may not be mounted. 37 CFR 1.84(e)

Poor quality (half-tone). Fig(s) _____

3. TYPE OF PAPER. 37 CFR 1.84(c)

Paper not flexible, strong, white, and durable.

Fig(s) _____

Erasures, alterations, overwritings, interlineations,

folds, copy machine marks not accepted. Fig(s) _____

Mylar, velum paper is not acceptable (too thin).

Fig(s) _____

4. SIZE OF PAPER. 37 CFR 1.84(f): Acceptable sizes:

21.0 cm by 29.7 cm (DIN size A4)

21.6 cm by 27.9 cm (8 1/2 x 11 inches)

All drawing sheets not the same size.

Sheet(s) _____

Drawings sheets not an acceptable size. Fig(s) _____

5. MARGINS. 37 CFR 1.84(g): Acceptable margins:

Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm

SIZE: A4 Size

Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm

SIZE: 8 1/2 x 11

Margins not acceptable. Fig(s) _____

8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(i)

Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned so that the top becomes the right side, except for graphs. Fig(s) _____

9. SCALE. 37 CFR 1.84(k)

Scale not large enough to show mechanism without crowding when drawing is reduced in size to two-thirds in reproduction.

Fig(s) _____

10. CHARACTER OF LINES, NUMBERS, & LETTERS.

37 CFR 1.84(i)

Lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (poor line quality).

Fig(s) _____

11. SHADING. 37 CFR 1.84(m)

Solid black areas pale. Fig(s) _____

Solid black shading not permitted. Fig(s) _____

Shade lines, pale, rough and blurred. Fig(s) _____

12. NUMBERS, LETTERS, & REFERENCE CHARACTERS.

37 CFR 1.84(p)

Numbers and reference characters not plain and legible.

Fig(s) _____

Figure legends are poor. Fig(s) _____

Numbers and reference characters not oriented in the same direction as the view. 37 CFR 1.84(p)(1)

Fig(s) _____

English alphabet not used. 37 CFR 1.84(p)(2)

Figs _____

Numbers, letters and reference characters must be at least 32 cm (1/8 inch) in height. 37 CFR 1.84(p)(3)



PATENT

Patent

Attorney's Docket No. 030681-305

2004 JAN 22 10:00 AM

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Jin-ho LEE, et al.

Application No.: 09/873,382

Filed: June 5, 2001

For: MICRO-ACTUATOR AND
MANUFACTURING METHOD
THEREOF

) Reply Under 37 C.F.R. 1.116-Expedited
) Procedure-Technology Center 2834
)
) Group Art Unit: 2834
)
) Examiner: K. TAMAI
)
) Confirmation No.: 4610
)
)
)
)

AMENDMENT/REPLY TRANSMITTAL LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Enclosed is a reply for the above-identified patent application.

☒ A Petition for Extension of Time is also enclosed.

☐ A Terminal Disclaimer and the ☐ \$55.00 (2814) ☐ \$110.00 (1814) fee due under 37 C.F.R. § 1.20(d) are also enclosed.

☒ Also enclosed is/are Notice of Appeal

☐ Small entity status is hereby claimed.

☐ Applicant(s) requests continued examination under 37 C.F.R. § 1.114 and enclose the ☐ \$385.00 (2801) ☐ \$770.00 (1801) fee due under 37 C.F.R. § 1.17(e).

☐ Applicant(s) requests that any previously unentered after final amendments not be entered. Continued examination is requested based on the enclosed documents identified above.

☐ Applicant(s) previously submitted ___, on ___, for which continued examination is requested.

☐ Applicant(s) requests suspension of action by the Office until at least ___, which does not exceed three months from the filing of this RCE, in accordance with 37 C.F.R. § 1.103(c). The required fee under 37 C.F.R. § 1.17(i) is enclosed.

RECEIVED
11.26.03 (10/03)

- ☐ A Request for Entry and Consideration of Submission under 37 C.F.R. § 1.129(a) (1809/2809) is also enclosed.
- ☐ No additional claim fee is required.
- ☒ An additional claim fee is required, and is calculated as shown below:

AMENDED CLAIMS					
	NO. OF CLAIMS	HIGHEST NO. OF CLAIMS PREVIOUSLY PAID FOR	EXTRA CLAIMS	RATE	ADD'L FEE
Total Claims	8	MINUS 19 =	0	× \$18.00 (1202) =	0
Independent Claims	4	MINUS 3 =	1	× \$86.00 (1201) =	86.00
If Amendment adds multiple dependent claims, add \$290.00 (1203)					0
Total Claim Amendment Fee					86.00
If small entity status is claimed, subtract 50% of Total Claim Amendment Fee					0
TOTAL ADDITIONAL CLAIM FEE DUE FOR THIS AMENDMENT					\$86.00

☒ A check in the amount of \$ 86.00 is enclosed for the fee due.

☐ Charge \$_____ to Deposit Account No. 02-4800.

The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17, 1.20(d) and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. This paper is submitted in duplicate.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: 11/26/03

By: _____

Stephen W. Palan
Registration No. 43,420

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620



Patent
Attorney's Docket No. 030681-305

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of) MAIL STOP AF
Jin-ho LEE, et al.) Group Art Unit: 2834
Application No.: 09/873,382) Examiner: K. TAMAI
Filed June 5, 2001) Confirmation No.: 4610
For: MICRO-ACTUATOR AND)
MANUFACTURING METHOD)
THEREOF)

NOTICE OF APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

All finally rejected claims in the decision of the Primary Examiner dated June 27, 2003 are hereby appealed to the Board of Patent Appeals and Interferences.

- ☐ The Appeal fee was previously paid on _____.
Therefore, no Appeal fee is now required.
- ☒ Enclosed is the Appeal fee of ☐ \$165.00 (2401) ☒ \$330.00 (1401).
- ☐ Please charge the Appeal fee of ☐ \$165.00 (2401) ☐ \$330.00 (1401) to Deposit Account No. 02-4800.
- ☐ Small entity status is hereby claimed.

The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. This paper is submitted in duplicate.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: 11/26/03

By: [Signature]

Stephen W. Palan
Registration No. 43,420

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

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11-26-03



Patent
Attorney's Docket No. 030681-305

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Jin-ho LEE, et al.

Application No.: 09/873,382

Filed: June 5, 2001

For: MICRO-ACTUATOR AND
MANUFACTURING METHOD
THEREOF

Group Art Unit: 2834

Examiner: K. TAMAI

Confirmation No.: 4610

PETITION FOR EXTENSION OF TIME

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following extension of time is requested to respond to an Office Action dated June 27, 2003:

FEE		
<input type="checkbox"/> one month to	<input type="checkbox"/> \$55.00 (2251)	<input type="checkbox"/> \$110.00 (1251)
<input checked="" type="checkbox"/> two months to <u>November 27, 2003</u>	<input type="checkbox"/> \$210.00 (2252)	<input checked="" type="checkbox"/> \$420.00 (1252)
<input type="checkbox"/> three months to	<input type="checkbox"/> \$475.00 (2253)	<input type="checkbox"/> \$950.00 (1253)
<input type="checkbox"/> four months to	<input type="checkbox"/> \$740.00 (2254)	<input type="checkbox"/> \$1,480.00 (1254)
<input type="checkbox"/> five months to	<input type="checkbox"/> \$1,005.00 (2255)	<input type="checkbox"/> \$2,010.00 (1255)

☐ The shortened statutory period has been reset by an Advisory Action dated

☒ An extension fee in the amount of \$ 420.00 is enclosed.

☐ Charge \$_____ to Deposit Account No. 02-4800.

The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17 and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. This paper is submitted in duplicate.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: 11/26/03

By: Stephen W. Palan
Registration No. 43,420

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Alexandria, Virginia 22313-1404
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11-26-03

((10/03))



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JAN 22 2004

Patent

Attorney's Docket No. 030681-305

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
Jin-ho LEE, et al.) Group Art Unit: 2834
Application No.: 09/873,382) Examiner: K. TAMAI
Filed: June 5, 2001) Confirmation No.: 4610
For: MICRO-ACTUATOR AND)
MANUFACTURING METHOD)
THEREOF)
)
)
)

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In complete response to the Office Action issued on June 27, 2003 and the Advisory Action issued on November 3, 2003, the Examiner's approval is respectfully requested to amend the above-identified application as follows:

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PAGE 2

Attorney's Docket No. 030681-305

Application No. 09/873,382

Page 2

US PAT. & T.M. OFFICE

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-4 (Canceled)

5. (Currently Amended) ~~The micro-actuator of claim 1~~ A micro-actuator comprising:
- a base plate on which a predetermined pattern of signal lines is formed;
 - a plurality of fixed comb-type electrodes that are arranged on the base plate and extend in a direction perpendicular to the base plate;
 - a stage capable of a see-saw motion that is arranged at a predetermined height from the top of the base plate;
 - a plurality of driving comb-type electrodes which are formed parallel to each other on the bottom of the stage and whose ends extend between the fixed comb-type electrodes;
 - a torsion bar with a predetermined length and thickness that is arranged at both ends of the stage forming one body with the stage in order to enable the see-saw motion of the stage, wherein the thickness of the torsion bar is less than the plurality of driving comb-type electrodes in a direction parallel to the plurality of driving comb-type electrodes;
 - a first frame layer connected to both ends of the torsion bar;
 - a second frame layer that is positioned below the first frame layer, thus forming a layered structure with the first frame layer; and

a metal eutectic bonding layer formed between the first and second frame layers to bond them together, wherein

the fixed comb-type electrodes are formed on an electrode base that is arranged on the base plate, and

the electrode base, the fixed comb-type electrodes and the second frame layer are formed of the same material.

6. (Original) The micro-actuator of claim 5, wherein the height of the fixed comb-type electrodes is greater than that of the second frame layer, and thus the front ends of the fixed comb-type electrodes are positioned higher than the top of the second frame layer.

Claims 7 and 8 (Canceled)

9. (Original) The micro-actuator of claim 5, wherein the front ends of the driving comb-type electrodes and the first frame layer are on a common plane.

Claims 10-22 (Canceled)

23. (Previously Presented) The micro-actuator of claim 6, wherein the front ends of the driving comb-type electrodes and the first frame layer are on a common plane.

24. (Currently Amended) ~~The micro-actuator of claim 2, wherein~~ A micro-actuator comprising:
- a base plate on which a predetermined pattern of signal lines is formed;
 - a plurality of fixed comb-type electrodes that are arranged on the base plate and extend in a direction perpendicular to the base plate;
 - a stage capable of a see-saw motion that is arranged at a predetermined height from the top of the base plate;
 - a plurality of driving comb-type electrodes which are formed parallel to each other on the bottom of the stage and whose ends extend between the fixed comb-type electrodes;
 - a torsion bar with a predetermined length and thickness that is arranged at both ends of the stage forming one body with the stage in order to enable the see-saw motion of the stage, wherein the thickness of the torsion bar is less than the plurality of driving comb-type electrodes in a direction parallel to the plurality of driving comb-type electrodes;
 - a first frame layer connected to both ends of the torsion bar;
 - a second frame layer that is positioned below the first frame layer, thus forming a layered structure with the first frame layer; and
 - a metal eutectic bonding layer formed between the first and second frame layers to bond them together, wherein
 - the first frame layer, the torsion bar, the stage, and the driving comb-type electrodes form one body.

the fixed comb-type electrodes are formed on an electrode base that is arranged on the base plate, and

the electrode base, the fixed comb-type electrodes and the second frame layer are formed of the same material.

25. (Currently Amended) ~~The micro-actuator of claim 3, wherein~~ A micro-actuator comprising:

a base plate on which a predetermined pattern of signal lines is formed;

a plurality of fixed comb-type electrodes that are arranged on the base plate and extend in a direction perpendicular to the base plate;

a stage capable of a see-saw motion that is arranged at a predetermined height from the top of the base plate;

a plurality of driving comb-type electrodes which are formed parallel to each other on the bottom of the stage and whose ends extend between the fixed comb-type electrodes;

a torsion bar with a predetermined length and thickness that is arranged at both ends of the stage forming one body with the stage in order to enable the see-saw motion of the stage, wherein the thickness of the torsion bar is less than the plurality of driving comb-type electrodes in a direction parallel to the plurality of driving comb-type electrodes;

a first frame layer connected to both ends of the torsion bar;

a second frame layer that is positioned below the first frame layer, thus forming a layered structure with the first frame layer; and

US PATENT
a metal eutectic bonding layer formed between the first and second frame layers to bond them together, wherein

the first frame layer has a shape of a rectangular border that surrounds the stage,
a separate region of a predetermined width is located between the first frame layer and the stage,

the torsion bar crosses the separate region,

the fixed comb-type electrodes are formed on an electrode base that is arranged on the base plate, and

the electrode base, the fixed comb-type electrodes and the second frame layer are formed of the same material.

26. (Currently Amended) ~~The micro-actuator of claim 4, wherein~~ A micro-actuator comprising:

a base plate on which a predetermined pattern of signal lines is formed;

a plurality of fixed comb-type electrodes that are arranged on the base plate and extend in a direction perpendicular to the base plate;

a stage capable of a see-saw motion that is arranged at a predetermined height from the top of the base plate;

a plurality of driving comb-type electrodes which are formed parallel to each other on the bottom of the stage and whose ends extend between the fixed comb-type electrodes;

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a torsion bar with a predetermined length and thickness that is arranged at both ends of the stage forming one body with the stage in order to enable the see-saw motion of the stage, wherein the thickness of the torsion bar is less than the plurality of driving comb-type electrodes in a direction parallel to the plurality of driving comb-type electrodes;

a first frame layer connected to both ends of the torsion bar;

a second frame layer that is positioned below the first frame layer, thus forming a layered structure with the first frame layer; and

a metal eutectic bonding layer formed between the first and second frame layers to bond them together, wherein

the first frame layer has a shape of a rectangular border that surrounds the stage,

a separate region of a predetermined width having a shape of rectangular border is prepared between the first frame layer and the stage,

the torsion bar crosses the separate region,

the fixed comb-type electrodes are formed on an electrode base that is arranged on the base plate, and

the electrode base, the fixed comb-type electrodes and the second frame layer are formed of the same material.

27. (Previously Presented) The micro-actuator of claim 25, wherein the front ends of the driving comb-type electrodes and the first frame layer are on a common plane.

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Attorney's Docket No. 030681-305

Application No. 09/873,382

Page 8

2009 JUL 27

US PATENT & TRADEMARK OFFICE

REMARKS

Reconsideration and allowance of the above-identified application are respectfully requested. Upon entry of the amendment above, claims 5, 6, 9, and 23-27 will be pending, wherein it is proposed to amend claims 5 and 24-26 into independent form, and cancel claims 1-4, 7, 8, 10 and 20-23. Entry of these amendments in the period after a final rejection is appropriate because these amendments place the application in immediate condition for allowance. Specifically, in accordance with the indication of allowability in paragraph 8 of the Office Action, claim 5 has been amended to include the elements of claim 1, claim 24 has been amended to include the elements of claims 1 and 2, claim 25 has been amended to include the elements of claims 1 and 3, and claim 26 has been amended to include the elements of claims 1 and 4. Claims 6, 9 and 27 are allowable at least by virtue of their dependency from an allowable independent claim.

PATENT
Attorney's Docket No. 030681-305

Application No. 09/873,382

Page 9

US PATENT & TRADEMARK OFFICE
CRIDE

Since all rejected claims have been canceled, it is respectfully submitted that the application is in immediate condition for allowance. Notice to this effect is earnestly solicited. If there are any questions regarding this response, or the application in general, the Examiner is encouraged to contact the undersigned at 703-838-6578.


Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date:

11/26/03

By:


Stephen W. Palan

Registration No. 43,420

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Alexandria, Virginia 22313-1404
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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NOTICE OF ALLOWANCE AND FEE(S) DUE

JAN 22 2004

21839 7590 12/11/2003
BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

BURNS, DOANE, SWECKER & MATHIS, L.L.P.
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DEC 15 03
DEC 12 2003
DOCKETED

EXAMINER
TAMAI, KARL I

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 12/11/2003

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,382	06/05/2001	Jin-Ho Lee	030681-305	4610

TITLE OF INVENTION: MICRO-ACTUATOR WITH INTERDIGITATED COMBS PERPENDICULAR TO A BASE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$300	\$1630	03/11/2004

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHT. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THE STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issued on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is the patentee's responsibility to ensure timely payment of maintenance fees when due.

Issue Fee & Publication Fee Due

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail**

Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (703) 746-4000

JAN 22 2004

INSTRUCTIONS: This form should be used for transmitting the **ISSUE FEE** and **PUBLICATION FEE** (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

21839 7590 12/11/2003

BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

Note: A certificate of mailing can only be used for domestic mailings of Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,382	06/05/2001	Jin-Ho Lee	030681-305	4610

TITLE OF INVENTION: MICRO-ACTUATOR WITH INTERDIGITATED COMBS PERPENDICULAR TO A BASE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$300	\$1630	03/11/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
TAMAI, KARL I	2834	310-309000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
- ☐ Publication Fee
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), or credit any overpayment Deposit Account Number _____ (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,382	06/05/2001	Jin-Ho Lee	030681-305	4610
21839	7590	12/11/2003	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			TAMAI, KARL I	
POST OFFICE BOX 1404			ART UNIT	
ALEXANDRIA, VA 22313-1404			PAPER NUMBER	

DATE MAILED: 12/11/2003

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.



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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,382	06/05/2001	Jin-Ho Lee	030681-305	4610
21839	7590	12/11/2003	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			TAMAI, KARL I	
POST OFFICE BOX 1404			ART UNIT	
ALEXANDRIA, VA 22313-1404			PAPER NUMBER	

2834

DATE MAILED: 12/11/2003

Notice of Fee Increase on October 1, 2003

If a reply to a "Notice of Allowance and Fee(s) Due" is filed in the Office on or after October 1, 2003, then the amount due will be higher than that set forth in the "Notice of Allowance and Fee(s) Due" since there will be an increase in fees effective on October 1, 2003. See Revision of Patent Fees for Fiscal Year 2004; Final Rule, 68 Fed. Reg. 41532, 41533, 41534 (July 14, 2003).

The current fee schedule is accessible from (<http://www.uspto.gov/main/howtofees.htm>).

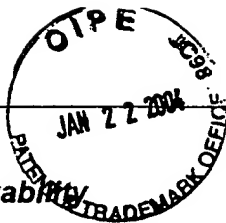
If the fee paid is the amount shown on the "Notice of Allowance and Fee(s) Due" but not the correct amount in view of the fee increase, a "Notice of Pay Balance of Issue Fee" will be mailed to applicant. In order to avoid processing delays associated with mailing of a "Notice of Pay Balance of Issue Fee," if the response to the Notice of Allowance is to be filed on or after October 1, 2003 (or mailed with a certificate of mailing on or after October 1, 2003), the issue fee paid should be the fee that is required at the time the fee is paid. If the issue fee was previously paid, and the response to the "Notice of Allowance and Fee(s) Due" includes a request to apply a previously-paid issue fee to the issue fee now due, then the difference between the issue fee amount at the time the response is filed and the previously-paid issue fee should be paid. See Manual of Patent Examining Procedure, Section 1308.01 (Eighth Edition, August 2001).

Effective October 1, 2003, 37 CFR 1.18 is amended by revising paragraphs (a) through (c) to read as set forth below

Section 1.18 Patent post allowance (including issue) fees.

- (a) Issue fee for issuing each original or reissue patent, except a design or plant patent:
 - By a small entity (Sec. 1.27(a))..... \$665.00
 - By other than a small entity..... \$1,330.00
- (b) Issue fee for issuing a design patent:
 - By a small entity (Sec. 1.27(a))..... \$240.00
 - By other than a small entity..... \$480.00
- (c) Issue fee for issuing a plant patent:
 - By a small entity (Sec. 1.27(a))..... \$320.00
 - By other than a small entity..... \$640.00

Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.



Notice of Allowability

Application No.

09/873,382

Examiner

Tamai IE Karl

Applicant(s)

LEE ET AL.

Art Unit

2834

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address-

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/26/2003.
2. ☒ The allowed claim(s) is/are 5, 6, 9 and 23-27.
3. ☒ The drawings filed on 03 September 2003 and 01 June 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- 1 ☐ Notice of References Cited (PTO-892)
- 2 ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3 ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____
- 4 ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

- 5 ☐ Notice of Informal Patent Application (PTO-152)
- 6 ☐ Interview Summary (PTO-413), Paper No. _____
- 7 ☐ Examiner's Amendment/Comment
- 8 ☐ Examiner's Statement of Reasons for Allowance
- 9 ☐ Other

Tamai IE Karl
Primary Examiner
Art Unit: 2834

**TAMAI IE KARL
PRIMARY EXAMINER**

The United States Patent and Trademark Office has changed certain mailing addresses!

Effective May 1, 2003

Use the address provided in this flyer after May 1, 2003 for any correspondence with the United States Patent and Trademark Office (USPTO) in patent-related matters to organizations reporting to the Commissioner for Patents.

DO NOT USE the Washington DC 20231 and P.O. Box 2327 Arlington, VA 22202 addresses after May 1, 2003 for any correspondence with the USPTO even if these old addresses are indicated in the accompanying Office action or Notice or in any other action, notice, material, form, instruction or other information.

Correspondence in patent-related matters to organizations reporting to the Commissioner for Patents must now be addressed to:



**Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**



Special Mail Stop designations to replace Special Box designations

Also effective May 1, 2003, the USPTO is changing the special Box designations for Patents and Trademarks to corresponding Mail Stop designations (e.g., "Box 4" will now be "Mail Stop 4").

For further information, see *Correspondence with the United States Patent and Trademark Office*, 68 Fed. Reg. 14332 (March 25, 2003). A copy of the *Federal Register* notice is available on the USPTO's web site at <http://www.uspto.gov/web/menu/current.html#register>

A listing of specific USPTO mailing addresses (See Patents – specific) will be available on the USPTO's web site on April 15, 2003 at <http://www.uspto.gov/main/contacts.htm>

Persons filing correspondence with the Office should check the rules of practice, the Official Gazette, or the Office's Internet Web site (www.uspto.gov) to determine the appropriate address and Mail Stop Designation (if applicable) for all correspondence being delivered to the USPTO via the United States Postal Service (USPS).

Questions regarding the content of this flyer should be directed to the Inventor Assistance Center at (703) 308-4357 or toll-free at 1-800-786-9199.

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**REVISED AMENDMENT PRACTICE: 37 CFR 1.121 CHANGED
COMPLIANCE IS MANDATORY - Effective Date: July 30, 2003**

All amendments filed on or after the effective date noted above must comply with revised 37 CFR 1.121. See Final Rule: **Changes To Implement Electronic Maintenance of Official Patent Application Records** (68 Fed. Reg. 38611 (June 30, 2003)), posted on the Office's website at: <http://www.uspto.gov/web/patents/ifw/> with related information. The amendment practice set forth in revised 37 CFR 1.121, and described below, replaces the voluntary revised amendment format available to applicants since February 2003. **NOTE: STRICT COMPLIANCE WITH THE REVISED 37 CFR 1.121 IS REQUIRED AS OF THE EFFECTIVE DATE (July 30, 2003).** The Office will notify applicants of amendments that are not accepted because they do not comply with revised 37 CFR 1.121 via a Notice of Non-Compliant Amendment. See MPEP 714.03 (Rev. 1, Feb. 2003). The non-compliant section(s) will have to be corrected and the entire corrected section(s) resubmitted within a set period.

Bold underlined italic font has been used below to highlight the major differences between the revised 37 CFR 1.121 and the voluntary revised amendment format that applicants could use since February, 2003.

Note: The amendment practice for reissues and reexamination proceedings, except for drawings, has not changed.

REVISED AMENDMENT PRACTICE

I. Begin each section of an amendment document on a separate sheet:

Each section of an amendment document (e.g., Specification Amendments, Claim Amendments, Drawing Amendments, and Remarks) must begin on a separate sheet. Starting each separate section on a new page will facilitate the process of separately indexing and scanning each section of an amendment document for placement in an image file wrapper.

II. Two versions of amended part(s) no longer required:

37 CFR 1.121 has been revised to **no longer require** two versions (a clean version and a marked up version) of each replacement paragraph or section, or amended claim. Note, however, the requirements for a clean version and a marked up version for **substitute specifications** under 37 CFR 1.125 have been retained.

A) Amendments to the claims:

Each amendment document that includes a change to an existing claim, cancellation of a claim or submission of a new claim, **must include a complete listing** of all claims in the application. After each claim number in the listing, the status must be indicated in a parenthetical expression, and the **text of each pending claim** (with markings to show **current** changes) must be presented. The claims in the listing will replace all prior claims in the application.

- (1) The current status of all of the claims in the application, including any previously canceled, not entered or withdrawn claims, must be given in a parenthetical expression following the claim number using only one of the following seven status identifiers: (original), (currently amended), (canceled), (withdrawn), (new), **(previously presented) and (not entered)**. The text of all pending claims, **including withdrawn claims**, must be submitted each time any claim is amended. Canceled **and not entered** claims must be indicated by only the claim number and status, without presenting the text of the claims.
- (2) The text of all claims **being currently amended** must be presented in the claim listing with markings to indicate the changes that have been made relative to the immediate prior version. The changes in any amended claim must be shown by underlining (for added matter) or strikethrough (for deleted matter) with 2 exceptions: (1) **for deletion of five characters or fewer, double brackets may be used (e.g., [[eroor]]); and (2) if strikethrough cannot be easily perceived (e.g., deletion of the number "4" or certain punctuation marks), double brackets must be used (e.g., [[4]]).** As an alternative to using double brackets, however, **extra portions of text may be included before and after text being deleted, all in strikethrough, followed by including and underlining the extra text with the desired change (e.g., number 4 as number 14 as).** An accompanying clean version is not required and should not be presented. Only claims of the status "currently amended," and "withdrawn" that are being amended, may include markings.
- (3) The text of pending claims **not being currently amended, including withdrawn claims**, must be presented in the claim listing in clean version, i.e., without any markings. Any claim text presented in clean version will constitute an assertion that it has not been changed relative to the immediate prior version except to omit markings that may have been present in the immediate prior version of the claims.



PAGE 1

**NOTICE OF OFFICE PLAN TO CEASE SUPPLYING COPIES OF CITED U.S. PATENT
REFERENCES WITH OFFICE ACTIONS, AND PILOT TO EVALUATE THE
ALTERNATIVE OF PROVIDING ELECTRONIC ACCESS TO SUCH U.S. PATENT
REFERENCES**

Summary

The United States Patent and Trademark Office (Office or USPTO) plans in the near future to: (1) cease mailing copies of U.S. patents and U.S. patent application publications (US patent references) with Office actions except for citations made during the international stage of an international application under the Patent Cooperation Treaty and those made during reexamination proceedings; and (2) provide electronic access to, with convenient downloading capability of, the US patent references cited in an Office action via the Office's private Patent Application Information Retrieval (PAIR) system which has a new feature called "E-Patent Reference." Before ceasing to provide copies of U.S. patent references with Office actions, the Office shall test the feasibility of the E-Patent Reference feature by conducting a two-month pilot project starting with Office actions mailed after December 1, 2003. The Office shall evaluate the pilot project and publish the results in a notice which will be posted on the Office's web site (www.USPTO.gov) and in the Patent Official Gazette (O.G.). In order to use the new E-Patent Reference feature during the pilot period, or when the Office ceases to send copies of U.S. patent references with Office actions, the applicant must: (1) obtain a digital certificate from the Office; (2) obtain a customer number from the Office, and (3) properly associate applications with the customer number. The pilot project does not involve or affect the current Office practice of supplying paper copies of foreign patent documents and non-patent literature with Office actions. Paper copies of references will continue to be provided by the USPTO for searches and written opinions prepared by the USPTO for international applications during the international stage and for reexamination proceedings.

**Description of Pilot Project to Provide Electronic Access to Cited U.S. Patent
References**

On December 1, 2003, the Office will make available a new feature, E-Patent Reference, in the Office's private PAIR system, to allow more convenient downloading of U.S. patents and U.S. patent application publications. The new feature will allow an authorized user of private PAIR to download some or all of the U.S. patents and U.S. patent application publications cited by an examiner on form PTO-892 in Office actions, as well as U.S. patents and U.S. patent application publications submitted by applicants on form PTO/SB08 (1449) as part of an IDS. The retrieval of some or all of the documents may be performed in one downloading step with the documents encoded as Adobe Portable Document format (.pdf) files, which is an improvement over the current page-by-page retrieval capability from other USPTO systems.

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references. The Office plans to continue to provide access to the E-Patent Reference feature during its evaluation of the pilot.

Comments

Comments concerning the E-Patent Reference feature should be in writing and directed to the Electronic Business Center (EBC) at the USPTO by electronic mail at eReference@uspto.gov or by facsimile to (703) 308-2840. Comments will be posted and made available for public inspection. To ensure that comments are considered in the evaluation of the pilot project, comments should be submitted in writing by January 15, 2004.

Comments with respect to specific applications should be sent to the Technology Centers' customer service centers. Comments concerning digital certificates, customer numbers, and associating customer numbers with applications should be sent to the Electronic Business Center (EBC) at the USPTO by facsimile at (703) 308-2840 or by e-mail at EBC@uspto.gov.

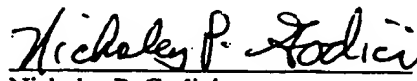
Implementation after Pilot

After the pilot, its evaluation, and publication of a subsequent notice as indicated above, the Office expects to implement its plan to cease mailing paper copies of U.S. patent references cited during examination of non provisional applications on or after February 2, 2004; although copies of cited foreign patent documents, as well as non-patent literature, will still be mailed to the applicant until such time as substantially all applications have been scanned into IFW.

For Further Information Contact

Technical information on the operation of the IFW system can be found on the USPTO website at <http://www.uspto.gov/web/patents/ifw/index.html>. Comments concerning the E-Patent Reference feature and questions concerning the operation of the PAIR system should be directed to the EBC at the USPTO at (866) 217-9197. The EBC may also be contacted by facsimile at (703) 308-2840 or by e-mail at EBC@uspto.gov.

Date: 12/1/03


Nicholas P. Godici
Commissioner for Patents